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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/520,491

04/07/2005

Martin Hellsten

PST6366P1US

9838

27624 7590 11/13/2008  
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EXAMINER

METZMAIER, DANIEL S

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

11/13/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/520,491	<b>Applicant(s)</b> HELLSTEN ET AL.	
	<b>Examiner</b> Daniel S. Metzmaier	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

Claims 1-6 and 8-18 are pending.

#### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-6 and 8-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 8 and 11 (all independent claims pending) set forth a concentration of (a), (b) and (c) at 50-400 ppm in water having an electrolyte content of 0.01-7% by weight. Components (a) and (b) are amphoteric surfactants and thus inherently have a charge. Component (c) is an anionic surfactant inherently has a charge. Components (a), (b) and (c) are considered organic electrolytes. It is unclear whether the concentration of the electrolytes referred in the claims includes the components (a), (b) and (c); which inherently read thereon.

#### ***Claim interpretation***

3. Reference is made to the citation to the USGS, "EXPLANATION OF HARDNESS", wherein it is clear that moderately hard water, hard water and very hard water have electrolytes of 100 ppm or greater calculated as  $\text{CaCO}_3$ .

It is noted that the electrolyte concentration and the concentrations of (a), (b), and (c) overlap. It is therefore proper for a reference that employs (a), (b), and/or (c) at concentrations reading on the electrolyte concentrations to conclude that said reference

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meets the electrolyte concentration limitation based on said (a), (b), and (c) concentrations.

Other names for lauryl sulfate or lauryl sulfonate are dodecyl sulfate or dodecyl sulfonate, respectively.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 11 and 15-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Hellsten et al, US 5,902,784. Hellsten et al (column 2, lines 28 et seq) discloses drag reducing agents comprising the combination of anionic sulfates and sulfonates with betaine surfactants having the structure set forth as formula (I), wherein R is the group  $R'NC_3H_6^-$  and R' (column 3, lines 6-19) is set forth as an acyl group having 14-16 carbon atoms for use in cooling media at 30° C or below and an acyl group having 18 carbon atoms or more, preferably 18-22 and 1 or 2 double bonds for heat-transfer medium at temperatures in the range of 50-120° C.

Hellsten et al (abstract; column 2, line 52; and claims) discloses the ratio of the betaines to the anionic surfactants at 20:1 to 1:2, preferably 10:1 to 1:1. Said ratios clearly and substantially overlap the claimed concentrations of (a) and (c).

Hellsten et al (column 3, lines 14-16 and example 1) disclose the mixtures will tolerate hard water and electrolytes, which may be added and exemplifies the use of extremely hard simulated sea water.

Hellsten et al (column 3, lines 24-27) discloses the surfactants (betaine and anionic) are employed at  $0.1-10 \text{ kg/m}^3$  (100-10,000 ppm).

The instantly claimed formulas employed in the claimed combinations and/or solutions are clearly envisaged in the Hellsten et al reference. The concentrations of the surfactants inherently read on the electrolyte concentrations as claimed as organic electrolytes. Hellsten et al further teaches the application of the surfactant combinations to hard water and simulated sea water, which reads on applicants' claimed electrolyte concentrations.

***Claim Rejections - 35 USC § 103***

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-6 and 8-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hellsten et al, US 5,902,784.

Hellsten et al (column 2, lines 28 et seq) discloses drag reducing agents comprising the combination of anionic sulfates and sulfonates with betaine surfactants having the structure set forth as formula (I), wherein R is the group  $R'NC_3H_6-$  and R' (column 3, lines 6-19) is set forth as an acyl group having 14-16 carbon atoms for use in cooling media at 30° C or below and an acyl group having 18 carbon atoms or more, preferably 18-22 and 1 or 2 double bonds for heat-transfer medium at temperatures in the range of 50-120° C.

Hellsten et al (abstract; column 2, line 52; and claims) discloses the ratio of the betaines to the anionic surfactants at 20:1 to 1:2, preferably 10:1 to 1:1. Said ratios clearly and substantially overlap the claimed concentrations of (a) and (c).

To the extent the Hellsten et al reference differs from the claims as not clearly envisaged or disclosed with sufficient specificity, it would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ the betaine and/or mixed betaine surfactants with anionic surfactants for their advantageous use as drag reducing agents taught in the Hellsten et al reference. The variation of the optimal concentrations is clearly obvious and within the level of one having ordinary skill in the art at the time of applicants' invention for the advantage of reducing drag taught in the Hellsten et al reference.

To the extent the Hellsten et al reference differs from the claims in the combination of betaines having a  $C_{14-16}$  acyl group with betaines having a  $C_{18-22}$  acyl group, it would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ mixed betaines and anionic surfactant combination for

their advantageous use as drag reducing agents taught in the Hellsten et al reference having a broad temperature application. The variation of the optimal concentrations for their taught temperature application is obvious and within the level of one having ordinary skill in the art at the time of applicants' invention for the advantage of reducing drag taught in the Hellsten et al reference at particular temperature applications.

### ***Response to Arguments***

8. Applicant's arguments filed 28 July 2008 have been fully considered but they are not persuasive.

9. Applicants (pages 9 and 10) assert the amendment defining the water has an electrolyte content and that Betaines are zwitterionic compounds and cannot dissociate to ions because the charges are part of the same molecule. This has not been deemed persuasive. Initially, the zwitterionic compounds are typically in some form of an ionized state for the single compound to carry the anionic and cationic charge, which depends on the pH of the environment said zwitterionic compounds are present. Furthermore, the charged compounds would be present at the solubilized in the aqueous phase, present at the aqueous interface or in the form of micelles having partial presence in the water phase. It is not agreed that the amendment clarifies the claims since this action disagrees with applicants' asserted premise used to attempt to distinguish said components.

10. Applicants (pages 10 and 11) assert the interpretation of the electrolyte concentrations in the Office Action is wrong and the rejection based on attributing any of the ionized concentration of (a), (b), or (c) to the electrolyte concentration is wrong.

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This has not been deemed persuasive since the breadth of the claims do not distinguish the organic ionized charged compounds that are expected to be in an equilibrium state as electrolytes and uncharged species from the electrolytes in water.

11. Regarding claim 11, applicants (page 11) assert the R1 group of the zwitterionic species distinguishes said claim. This is not agreed. Attention is directed to Hellsten et al at least at example 7, which employs a mixture of compounds derived from palmitic acid (C16) and longer fatty acid such as oleic, linoleic, and stearic acids (C18).

12. Applicants' arguments that the acyl group of 12-16 carbons claimed is a subset of the 10-24 carbon acyl groups of the Hellsten et al reference. This has not been deemed persuasive since Hellsten et al discloses the compositions may contain zwitterinic compounds derived from mixtures comprising palmitic acid. Applicants claims employ open language and would not exclude the other components. Furthermore, Hellsten et al discloses the broader range of acid groups may be employed and applicants have not shown a patentable difference between the prior art disclosed compounds derived from the broader range of fatty acids.

13. Applicants (page 11) assert the Hellsten et al reference is distinguished based on the concentration of 50-400 ppm of (a), (b) and (c) claimed. This has not been deemed persuasive since the Hellsten et al reference (column 3, line 26) discloses use concentrations of 0.1-10 kg/m<sup>3</sup>, which equates to 100 – 10,000 ppm.

14. Applicants (pages 11 and 12) further assert the water contains 0.1 to 7 wt % electrolyte and is further distinguished from the Hellsten et al reference. This has not been deemed persuasive since (1) as noted above the claims do not distinguish the



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agents from the charged agents added. (2) Furthermore, the electrolyte range overlaps the use of municipal water that is known in the art as moderately hard water and encompasses hard and very hard municipal water sources. Attention is directed to the USGS citation referenced in the claim interpretation section above.

15. Applicants (page 12) assert the Hellsten et al reference employs concentrations 1075 ppm and 1240 ppm, which are in excess of the 400 ppm claimed. This has not been deemed persuasive since the Hellsten et al reference (column 3, line 26) discloses use concentrations of 0.1-10 kg/m<sup>3</sup>, which equates to 100 – 10,000 ppm.

16. Applicants (pages 12 and 13) assert Hellsten et al reference is unobvious since the Hellsten et al reference employs higher concentrations and fails to recognize that lower concentrations may be employed in high electrolyte concentrations. This has not been deemed persuasive since the Hellsten et al reference (column 3, line 26) discloses broader use concentrations of 0.1-10 kg/m<sup>3</sup>, which equates to 100 – 10,000 ppm, which overlap applicants.

All disclosures in a reference must be considered for what it fairly teaches those of ordinary skill in the art, **not just preferred embodiments or specific working examples**. In re Boe, 355 F2d 961, 148 USPQ 507, (CCPA, 1966). In re Chapman, 357 F2d 418, 148 USPQ 711, (CCPA, 1966). In re Mills, 470 F2d 649, 176 USPQ 196, (CCPA, 1972).

17. Applicants' arguments (pages 13 and 14) asserting applicable temperature ranges have not been deemed persuasive since the claims set forth no temperature ranges.

18. Applicants (page 14) assert the Hellsten et al reference discloses different carbon number length betaines for different temperatures rather than the combination. This has not been deemed persuasive since it is known the employ an agent for its art recognized function. In the instant case, the drag reducing agents are employed for the same function as applicants claimed function, at concentrations and temperatures broadly disclosed in the prior art that overlap those concentrations claimed. It is at least suggested to employ a mixture of agents for a broader temperature range and/or a particular application.

19. Applicants' (page 15) arguments regarding claims 2 and 12 have not been deemed persuasive and have been addressed herein above.

### ***Conclusion***

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (571) 272-1089. The examiner can normally be reached on 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David W. Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/Daniel S. Metzmaier/  
Primary Examiner, Art Unit 1796**

DSM